

Spin Scaler Inputs

Bd	5,6	7	8	9,10
bit	Luminosity ¹	Deadtime ²	Calorimetry ²	FPD Asymmetry ¹
0	ZDC-ΔT 1	ZDC-ΔT 1	FPDE-N-thbit0	FPDE-N-thbit0
1	ZDC-ΔT 2	ZDC-ΔT 2	FPDE-S-thbit0	FPDE-N-thbit1
2	ZDC-ΔT 3	ZDC-ΔT 3	FPDW-N-thbit0	FPDE-S-thbit0
3	ZDC-ΔT 4	ZDC-ΔT 4	FPDW-S-thbit0	FPDE-S-thbit1
4	BBC-S-ΔT 1 ³	BBC-S-ΔT 1	BBC-S-ΔT 1	FPDE-T-thbit0
5	BBC-S-ΔT 2	BBC-S-ΔT 2	BBC-S-ΔT 2	FPDE-T-thbit1
6	BBC-S-ΔT 3	BBC-S-ΔT 3	BBC-S-ΔT 3	FPDE-B-thbit0
7	BBC-S-ΔT 4	BBC-S-ΔT 4	BBC-S-ΔT 4	FPDE-B-thbit1
8	BBC-L-ΔT 1	Live0 (TPC,FTPC,SVT)	BEMCE-HT>th0	FPDW-S-thbit0
9	BBC-L-ΔT 2	Live1(FPD SMD)	BEMCW-HT>th0	FPDW-S-thbit1
10	ZDCE-sum-th0	Live2(TOF)	BEMC-JP-bit1	FPDW-N-thbit0
11	ZDCE-sum-th1	Live3(BTOW)	BEMC-JP-bit2	FPDW-N-thbit1
12	BBCE-sum-th0	Live4(BSMD)	EEMC-JP-bit1	FPDW-T-thbit0
13	BBCE-sum-th1	Live5(ETOW)	EEMC-JP-bit2	FPDW-T-thbit1
14	LD301/0	Live6(ESMD) ⁴	EEMC-HT-bit1	FPDW-B-thbit0
15	BEMCEHT>th0	TokenFifoMT	EEMC-HT-bit2	FPDW-B-thbit1
16	VT201/0	VT201/0	VT201/0	VT201/0
17	BX0	BX0	BX0	BX0
18	BX1	BX1	BX1	BX1
19	BX2	BX2	BX2	BX2
20	BX3	BX3	BX3	BX3
21	BX4	BX4	BX4	BX4
22	BX5	BX5	BX5	BX5
23	BX6	BX6	BX6	BX6

1)These are set up in pairs, reading one of the pair every 250 sec and storing the data in the database with a timestamp, and letting the other integrate throughout a run.

2)These are read periodically, likely integrating over a complete run.

3) These imply BBCE•BBCW coincidence. Also note that all ΔT values involve a hardware threshold for the discriminator that fires the TAC. The ΔTAC LUT must have values for its 4 MSBs (values 0-15) aligned with the L0 trigger bits: window 0 must correspond to central values – a window from e.g. $7 < \Delta TAC < 9$: window 1 correspond to wider values e.g. $5 < \Delta TAC < 12$. Using a “normal” 1:1 LUT would put the central value near 256, since we compute TAC(E)+256-TAC(W) to keep all values positive. Our new LUT would map 256->8 and compress the 512 possible values into just 16 bins, probably in a non-linear map. By setting the bin boundaries at the values used for level 0 window boundaries we can correlate the scalers directly with the event data.

4) removed the PMD LIVE bit to accommodate VT201/0 since the PMD will not be involved in many production runs for pp